

Cause of skin cancer that heals itself found

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(PhysOrg.com) -- An international team of scientists has identified the key gene causing a rare type of skin cancer that grows rapidly for a few weeks or months but then heals itself.

The disease, multiple self-healing squamous epithelioma (MSSE), or Ferguson-Smith disease (FSD) is characterized by the growth of many small tumors, which then inexplicably heal themselves after a few weeks or months, leaving behind deep, pitted scars. The tumors are most common on areas of the skin exposed to sunlight. It is an extremely rare form of [skin cancer](#).

Researchers Dr David Goudie of the Human Genetics Unit at the University of Dundee College of Medicine, Dentistry and Nursing, and colleagues around the world studied over 60 patients with the disease and compared their DNA to that of over 100 unaffected relatives of the patients. Their research showed that the patients with MSSE had an inherited fault in the TGFBR1 gene.

The gene is involved in a signaling pathway between cells and gives them instructions on growth and development processes. When a [malignancy](#) is present, the instructions given by the gene are interpreted in two different ways, at different stages in [tumor growth](#).

In most types of cancer the gene helps prevent the growth of the tumor at an early stage, but when the cancer becomes more aggressive it has the opposite effect, promoting their growth instead. In MSSE the gene acts in reverse to other cancers, promoting the growth of early tumors but

preventing the growth of advanced tumors and allowing them to heal themselves.

Dr Goudie said if scientists could understand how this rare form of skin cancer could heal itself we will be able to understand more about how other tumors grow, and perhaps develop treatments to stop their growth.

It had been known for some time that the disease was caused by a defect in the chromosome 9q22.3 but the exact [genetic defect](#) was unknown until now. The paper describing the findings was published yesterday in the journal *Nature Genetics*.

More information: Multiple self-healing squamous epithelioma is caused by a disease-specific spectrum of mutations in TGFBR1, David R Goudie, Mariella D'Alessandro, Barry Merriman, Hane Lee, Ildikó Szeverényi, Stuart Avery, Brian D O'Connor, Stanley F Nelson, Stephanie E Coats, Arlene Stewart, Lesley Christie, Gabriella Pichert, Jean Friedel, Ian Hayes, Nigel Burrows, Sean Whittaker, Anne-Marie Gerdes, Sigurd Broesby-Olsen, Malcolm A Ferguson-Smith, Chandra Verma, Declan P Lunny, Bruno Reversade & E Birgitte Lane, *Nature Genetics* (2011) [doi:10.1038/ng.780](https://doi.org/10.1038/ng.780)

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